CivilDesign Hydrology/Hydraulics Software Version Changes

Rational Method Hydrology Programs:	RHYD, RSBC, RRIV, RROC, RSD3, RSDG, RRCV, RRKERN
Unit Hydrograph Hydrology Programs:	UNHYD, UNSBC, UNRIV, UNHOC, UNKERN
Hydraulics Programs:	ROUTE, HYDR

Version	Date	Action
9	2014	Use Windows Note-Pad program instead of VP32 program for viewing output files
8	2013	Encode authorization file in C:\Civild folder instead of C:\ ROOT directory
6	2001	Change installation from floppy disk DOS to CD Windows Console Version
		The above changes made the programs compatible with Windows through Systems 7 and 8.
7	2004	The RSD3, RSBC, RROC, and RRIV rational method mean flow rate calculations were improved for streets and channels where added area runoff is used. County flood control agencies, except San Diego County did not require use of this change – See Note below.

*The following exceptions are a list of other changes in computations made to the listed programs.

Program	Version No.	Date	Change Applied
UNRIV - Unit Hydrograph Method, Riverside County	8.1	2014	Version 6.4 of the program showed some errors in flow rate calculations for the 2, 5 and 10 year storms due to the formula in the RCFCD&WCD manual, Version 6.4 was O.K. for 100 year storms. The formula was changed and Version 8+ fixed the problem for lesser year storms.
RRIV - Rational Method Hydrology, Riverside Co.	8	2012	Deleted user option of using multiple development types for Initial Area TC calculations. Older Versions of the program may have calculated a TC shorter than required resulting in a higher rainfall intensity and flow rate

Note: When area runoff is added during a channel or street reach, the old version 6.4 estimated the average flow rate in the new reach by adding flow to the upstream amount using an approximation based upon the ½ the area being added, multiplied times the previous average flow rate per acre. Version 7 calculates the average flow rate through an iteration sub-routine which uses the added area and type of development to calculate the flow rate based upon the new TC calculated using the average flow rates travel time through the channel reach. The average flow rate is adjusted until the total Q balances to within 0.05 CFS to match the average flow rate through the channel reach. This method was developed to satisfy the 2003 San Diego Co. Hydrology Manual requirements. This revision provides more accurate TC and flow rate calculations, particularly when the development type changes from the upstream area. However, in most cases, the resulting flow rates show little difference from Version 6.4 of the software.

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Program	Version No.	Date	Change Applied
WSPGW – Water Surface Pressure Gradient for Windows (Modified LACO F0515P)	14	2000	Version 12.96 of the program was upgraded from a floppy disk installation to a CD. User interface was improved
	14.07	2012	Move authorization file from C:\ root directory to C:\ProgramFiles\Civild folder for Windows 7 & 8
	14.08	2013	Some new 64 bit computers, not all, would not send "ENTER key" to portions of the program. This change corrected the problem and will be sent to Version 14.07 user's on request.
LAR04 – Modified Rational Hydrology Method – Los Angeles County (Modified LACO F0601)	11.1	2007	Replace LAR02 which used a C factor of 1.0 for impervious areas per LACO instruction changed C-factor to 0.90 for impervious area fractions.
	11.3	2009	Improve small area calculations for flow rates less than 1.0 CFS.
	11.2	2009	Older version of program for large area flow rates Included with LAR04 software as LAR04.V112 must be re-named to LAR04.EXE to use.
RETARD – Retarding Basin Program to route LAR04 hydrographs through basins using ModPuls storage indication method	6.4	2004	For large area hydrographs. For small area low flow rates, use the RETFINE program included with the LR04 software.